# Capital region losing ground in preparing for levee disaster

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*Last of three parts*

It is a calamity so unthinkable that many Sacramentans rarely ponder it.

At the peak of a winter storm, a levee breaks, sending a wall of water crashing through California's capital city.

Is the region prepared for such a disaster? Could emergency response crews quickly evacuate thousands of people, given the congestion that clogs highways on normal days?

The answers aren't encouraging. A months-long review by The Bee has found that state and local agencies haven't held a flood-training exercise since 1999. The city has done little to educate residents about evacuation plans, and it hasn't practiced how emergency crews would respond to a sudden levee break that coincided with rush-hour traffic.

Flood experts say the city deserves kudos for preparing a detailed "Comprehensive Flood Management Plan" in 1996, which includes 21 maps of what would happen if a levee broke in downtown, Natomas, the Pocket or other neighborhoods.

Yet the city hasn't formally updated that plan for eight years. It doesn't include up-to-date locations of nursing homes, child care centers and other critical facilities. Nor does it incorporate lessons learned in the 1997 floods.

City and county officials say they are dealing with these issues. They hope to hold a major flood training session later this year. They also express confidence that they could respond quickly before a flood to evacuate key parts of the city.

"Hopefully, we would be able to make those decisions (on evacuations) long before a levee ever broke," said Dave Brent, an engineer with the Sacramento Department of Utilities. "The key is to know where it gets deep quick."

Others, however, say the region's population and traffic growth demands that civic officials take a fresh look at emergency response.

"If you had a major levee failure in Sacramento, you might not have time to get out," said Jonas Minton, former deputy director for the state Department of Water Resources. "Imagine trying to evacuate Sacramento or Natomas with the kind of traffic we have now."

As Minton and others note, state and local emergency agencies have made strides since 1997. Weather forecasting and communications have improved. In a major

step, the state moved its Office of Emergency Services from a flood-prone area in south Sacramento to a higher spot near Mather Field.

Over the past three years, however, a burgeoning fiscal crisis has cut into the state's ability to respond to a flood, said Sonny Fong, emergency preparedness manager for DWR. "Like everyone else, we've been affected," said Fong, noting that while funding has waned, the flood threats of past years have not.

In 1997, a massive Pacific storm was heading straight toward the Sacramento area. At the last moment, the storm split in two, dumping most of its rain on the north and south sides of the American River basin.

"We got lucky," said Carole Hopwood, emergency management coordinator for Sacramento County. "If that storm had landed on the upper reaches of the American River, we would have needed to order evacuations."

The region also was lucky in 1986. "We were very close to losing several of the levees along the American River," Hopwood said. Arden Creek flooded the Strawberry Manor neighborhood, but levees held along the American and Sacramento rivers, despite numerous leaks.

Following the near-disaster of 1986, local governments formed the Sacramento Area Flood Control Agency, and SAFCA since has spent $265 million upgrading 82 miles of local levees - reducing but not eliminating the threat. Congress has twice rejected plans for an Auburn dam. Federal agencies are now modifying Folsom Dam so they can quickly free up flood space before a big storm.

Even with those improvements, many flood specialists say there will be a flood one day that overwhelms the city's defenses, no matter how strong the levees are and how much water can be held upstream.

"There is a storm out there that has our name on it," said Hopwood, noting that Sacramento sits at the bottom of one of the steepest, most powerful watersheds in the Sierra, the American River. "So we need to be prepared."

Sobering scenarios

To prepare for the worst, the Sacramento city Department of Utilities in 1996 developed what it calls "a plan of action against a flood disaster." Two inches thick and largely unknown to local residents, the plan includes 21 maps prepared by consultant Borcalli & Associates that detail different catastrophic floods.

The maps are sobering.

In the Pocket-Greenhaven area, south of downtown, a break in the Sacramento River levee quickly would make roads impassable and ultimately would fill the neighborhood to a depth of 10 feet. In Natomas, the flooding could reach twice that depth, although the water would rise more slowly than in the smaller Pocket area.

Even a levee break in River Park, north of California State University, Sacramento - neither as deep as Natomas, nor as confined as the Pocket - would flood 1,600 homes to a depth of 15 feet and spread water throughout the central city.

Consider the chain of events:

At 2 a.m., a water-saturated levee on the south side of the American River breaks open just east of the Capital City Freeway. Water fills the east side of River Park 5 feet deep within two hours and 15 feet in 24 hours. Other parts of River Park fill more slowly, but reach 10 feet deep in less than 24 hours, according to the city's modeling.

From there, the water spills into the rest of the city.

Two hours after the break, water pooled up on the east side of the Capital City Freeway flows through a railway levee and west into midtown. Eventually that flow is joined by a second wave of water spilling out of River Park near C Street, which meanders through east Sacramento on its way to the state Capitol.

With any luck, public safety agencies would have evacuated most of River Park several hours before the break. Under the city's emergency response plan, city police are supposed to start evacuating "critical facilities," such as nursing homes, schools and day care centers, whenever the American River rises above 42.8 feet at the H Street Bridge. When the river reaches 43.8 feet, the city manager is advised to evacuate all neighborhoods that could be flooded.

City officials say they would be especially cautious with River Park, a neighborhood of mostly single-story ranch houses that sits at a bend of the American River and has few evacuation routes.

"If it fills up there, it will be quick and deep," said Brent. "There isn't a lot of time to get emergency equipment there."

Developed in the 1940s and 1950s, River Park has seen its share of near misses. In 1950, a surging American River burst though the levees across the river, flooding acres of hops fields. Campus Commons now occupies those fields, closing off that relief valve in future floods.

In 1986, the American River reached 43.4 feet at H Street, and scores of workers rushed to plug leaks in the neighborhood levee.

Many River Park residents stayed with their homes in 1986 and some say they might do it again. Among them is Frank Cirill, past president of Save the American River Association, who recalls stuffing his valuables into the attic in 1986, and readying his kayak.

"If there were a severe levee break, water would be 8 feet deep in my house," said Cirill, now 81. "A lot of people wouldn't want to deal with that, but I think I'd know what to do."

One of his neighbors, Tim Horner, wouldn't take that chance.

City workers test a floodgate on H Street near east Sacramento's River Park area as the fast-rising American River threatens levees on Feb. 18, 1986. The river peaked at 43.4 feet, and officials were worried the waters would overtop the levees.

Sacramento Bee file, 1986/Randy Pench

"You will find me and my family at a motel in Vacaville if there is any kind of a severe problem here," said Horner, a professor of geology at CSU Sacramento.

Horner's biggest fear is an unexpected levee break - such as the one that occurred in 1986 in the Yuba County town of Linda. Wary of such an accident closer to home, Horner and his family have prepared an evacuation plan that he hopes they will never test. They are also adding a second story to their home so in case of a flood they can escape to the roof.

"Here's the reality: Within a few minutes, we would not be able to drive out of River Park, but the water wouldn't be dangerously high," Horner said. "So we would walk over to the five-story building I work in, and would hang out here until the water receded."

With an unexpected levee break, state and local emergency agencies would have a tough time maintaining an orderly evacuation. Radios and televisions would start blaring the news; people would rush into their cars; roads and freeways would quickly become gridlocked.

Motorists on the elevated freeways, while stuck, would be above the high water. But others would be unable to access the freeway onramps and would abandon their cars.

Tim Horner sits on the unfinished balcony of his River Park home. His wife wanted a second-story addition so they could escape to the roof during a flood. Horner, a CSUS geology professor, also has an evacuation plan in case of a surprise levee break: Walking to his five-story office building and staying there until the floodwaters recede.

Sacramento Bee/Randy Pench

Using their emergency response maps, local authorities would divide the flooded area into two zones: rescue zones, where floodwaters have the potential to reach 1 foot after two hours, and evacuation zones, where the water would rise more slowly.

Responders would focus first on rescuing the most vulnerable residents, such as those in nursing homes and care facilities.

As of 1996, there were 10 convalescent homes, five hospitals and 34 day care centers in the area that would be flooded by a River Park levee break. The current numbers are likely higher. City and county officials say they have gathered more recent information on care facilities. That information has been loaded into a new high-tech mapping system shared by all agencies, but it hasn't been incorporated into the plan itself.

Authorities would need to make quick decisions on the old floodgates sprinkled around the city. During a big flood, city crews would have the option of closing these gates - holding back floodwaters from some areas but more quickly inundating others. According to city documents, it would take one to four hours for crews to close each gate.

"That would be a game-day decision," said Brent. "It would depend on a lot of factors."

Stigma could linger

Gradually, the flood from a River Park levee break would flow through most of the central city, cutting off access to Sutter General Hospital and submerging the first floors of restaurants, homes and government buildings.

At 8 a.m., six hours after the levee break, the white granite of the state Capitol would be surrounded by murky water. After 19 hours, the flood would cross Sutterville Road and inundate neighborhoods to the south.

If the flood were especially large, it would cut off access to the Sacramento district headquarters of the U.S. Army Corps of Engineers, which occupies several floors of an office building at 13th and J streets.

Jason Fanselau, spokesman for the Sacramento district, said the corps has planned for that prospect. The district, he said, has an updated "Continuity of Operations Plan" with redundant communications systems; key equipment stored at multiple locations; and three possible places for a remote emergency operations center, assuming workers can't access the downtown building.

During major storms, the state usually asks the corps for help in essential "flood fighting" and recovery. Following the 1997 flood, the corps was called on to repair a breach in the Feather River levee that flooded thousands of acres in Yuba County.

"The first thing you have to do is armor the edges of the breach to stop erosion," said Fanselau. After building a road on the levee - with a turnaround for trucks - the corps dumps rocks and dirt in the breach. "In 1997, it took us a few weeks," he said.

By all accounts, a similar levee break in Sacramento would be an economic disaster. According to a study four years ago by local economist Robert Fountain, a major

Sacramento flood would affect 242,388 jobs and cause $7.7 billion in total damage. Even if it didn't lead to a large loss of life, it would shut down the city and disrupt state government operations and a major transportation hub.

Following the flood, millions of dollars of federal disaster relief probably would flow into the Sacramento region, including Small Business Administration loans, emergency medical care and housing programs. But as Fountain warns in his study, "Most of these programs are administered and partly funded by state and federal agencies" that would be affected by the flooding. Such dislocation, he wrote, could delay the distribution of disaster assistance.

Simply getting rid of the accumulated floodwaters - the first step in recovery - would be a messy task. To drain the inundated area, city engineers would need to crank up dozens of pump stations around the city; only 21 percent have backup power, according to the city. If electricity were knocked out by the storm and couldn't quickly be restored, state and federal agencies would need to call in scores of portable pumps and generators so Sacramento could start drying out.

Eventually, the city would recover, experts say, although the stigma of the disaster could linger for decades.

"In the long run, Sacramento may be viewed as a damaged economy, vulnerable to flooding and unattractive to businesses," Fountain wrote. "The recovery process is a long and painful one."